

PATENT CLAIMS

1. (original) An X-ray opaque glass, characterized by a composition (in mol%) of:

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SiO <sub>2</sub>	60-98
Yb <sub>2</sub> O <sub>3</sub>	0.1-40
ZrO <sub>2</sub>	0-40

10 2. (original) The X-ray opaque glass as claimed in claim 1, characterized by a composition (in mol%) of:

SiO <sub>2</sub>	60-98
Yb <sub>2</sub> O <sub>3</sub>	0.1-40
15 ZrO <sub>2</sub>	0.1-40

3. (currently amended) The X-ray opaque glass as claimed in ~~at least one of the preceding claims~~ claim 1, characterized by a composition (in mol%) of:

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SiO <sub>2</sub>	70-98
Yb <sub>2</sub> O <sub>3</sub>	0.5-15
ZrO <sub>2</sub>	0.5-15

25 4. (currently amended) The X-ray opaque glass as claimed in ~~at least one of the preceding claims~~ claim 1, characterized by a composition (in mol%) of:

SiO <sub>2</sub>	70-98
30 Yb <sub>2</sub> O <sub>3</sub>	1-15
ZrO <sub>2</sub>	1-15

5. (currently amended) The X-ray opaque glass as claimed in ~~at least one of the preceding claims~~ claim 1, characterized by an additional content (in mol%) of:

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WO <sub>3</sub>	0-40
La <sub>2</sub> O <sub>3</sub>	0-40
Nb <sub>2</sub> O <sub>5</sub>	0-40

	HfO <sub>2</sub>	0-40
	Ta <sub>2</sub> O <sub>5</sub>	0-40
	Gd <sub>2</sub> O <sub>3</sub>	0-40
	Lu <sub>2</sub> O <sub>3</sub>	0-40
5	Sc <sub>2</sub> O <sub>3</sub>	0-40
	Y <sub>2</sub> O <sub>3</sub>	0-40
	F <sub>2</sub>	0-5

6. (currently amended) The X-ray opaque glass as  
10 claimed in ~~at least one of the preceding claims~~ claim  
1, characterized by an additional content (in mol%) of:

	Li <sub>2</sub> O	0-<10
	Na <sub>2</sub> O	0-<10
15	K <sub>2</sub> O	0-<10
	with $\sum$ Li <sub>2</sub> O + Na <sub>2</sub> O + K <sub>2</sub> O	0-<10

7. (currently amended) The X-ray opaque glass as  
20 claimed in ~~at least one of the preceding claims~~ claim  
1, characterized by an additional content (in mol%) of:

	MgO	0 - 10
	CaO	0 - 10
	SrO	0 - 10
25	BaO	0 - 10
	ZnO	0 - 10
	with $\sum$ MgO + CaO + SrO + BaO	0 -<10

8. (currently amended) The X-ray opaque glass as  
30 claimed in ~~at least one of the preceding claims~~ claim  
1, characterized by an additional content (in mol%) of:

	TiO <sub>2</sub>	0 - 10
	GeO <sub>2</sub>	0 - 10
35	P <sub>2</sub> O <sub>5</sub>	0 - 10
	with $\sum$ TiO <sub>2</sub> + GeO <sub>2</sub> + P <sub>2</sub> O <sub>5</sub>	0 -<15

9. (currently amended) The X-ray opaque glass as  
claimed in ~~at least one of claims 5 to 8~~ claim 5,

characterized by a composition which contains at most five oxidic components.

10. (currently amended) The X-ray opaque glass as  
5 claimed in ~~at least one of claims 4 to 8~~ claim 4,  
characterized by a composition which contains at most four oxidic components.

11. (currently amended) The X-ray opaque glass as  
10 claimed in ~~at least one of claims 4 to 8~~ claim 4,  
characterized by a composition which contains at most three oxidic components.

12. (currently amended) A glass powder with a mean  
15 grain size of up to 20  $\mu\text{m}$ , characterized by a  
composition as claimed in ~~at least one of claims 1 to 11~~ claim 1.

13. (original) The glass powder as claimed in claim  
20 12, characterized by silanization of its surface.

14. (currently amended) A process for producing a  
glass having a composition as claimed in ~~at least one of claims 1 to 11~~ claim 1, comprising batch preparation  
25 from the raw material components of the glass, batch  
charge and melting in a melting vessel, characterized  
in that the temperature during melting is at least  
1500°C, particularly preferably at least 1600°C.

30 15. (original) The process as claimed in claim 14,  
characterized in that the melting vessel at least  
partially comprises solid iridium and/or alloys with a  
high iridium content.

35 16. (original) The process as claimed in claim 14,  
characterized in that the melting is carried out with  
the aid of incident high-frequency radiation.

17. (original) The process as claimed in claim 16, characterized in that the high frequency is from 50 kHz to 2 MHz.

5 18. (currently amended) The process as claimed in ~~at least one of claims 14 to 17~~ claim 14, characterized in that at least one raw material component of the glass is in the form of nanoscale powder prior to the step of batch charge.

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19. (currently amended) The process as claimed in ~~at least one of claims 14 to 18~~ claim 14, characterized in that for the batch preparation at least one raw material component is in the form of nanoscale powder  
15 which is dispersed and/or dissolved in a solvent together with the remaining raw material components, introduced into a mold and dried to form a green body.

20. (original) The process as claimed in claim 19,  
20 characterized in that the drying of the raw material components which have been dissolved and/or dispersed and introduced into the mold is carried out with the aid of the action of microwave radiation.

25 21. (original) The process as claimed in claim 20, characterized in that the mold at least partially comprises a non-wetting material, preferably Teflon.

22. (currently amended) The process as claimed in ~~at least one of claims 19 to 21~~ claim 19, characterized in  
30 that the green body is charged as batch either as a single entity or in milled form.

23. (currently amended) The process as claimed in ~~at least one of claims 19 to 21~~ claim 19, characterized in  
35 that the green body is milled, dissolved and/or dispersed in a solvent and dried to form a compact body.

24. (currently amended) The process as claimed in ~~claim 19 and/or 23~~ claim 19, characterized in that the solvent used is alkali metal lye or ammonia water.
- 5 25. (currently amended) The process as claimed in ~~at least one of claims 19 to 24~~ claim 19, characterized in that the green body and/or the compact body are sintered.
- 10 26. (original) The process as claimed in claim 25, characterized in that the waste heat of melting is at least partially used for the sintering.
- 15 27. (currently amended) The use of the glass as claimed in ~~at least one of claims 1 to 11~~ claim 1 as a dental glass.
- 20 28. (currently amended) The use of the glass as claimed in ~~at least one of claims 1 to 11~~ claim 1 as a filler in composites for dental restoration.
- 25 29. (currently amended) The use of the glass as claimed in ~~at least one of claims 1 to 11~~ claim 1 as a filler in composites based on epoxy resin for dental restoration.
- 30 30. (currently amended) The use of the glass as claimed in ~~at least one of claims 1 to 11~~ claim 1 as an X-ray opacifier in dental compositions.
31. (currently amended) The use of the glass as claimed in ~~at least one of claims 1 to 11~~ claim 1 for optical applications.
- 35 32. (currently amended) The use of the glass as claimed in ~~at least one of claims 1 to 11~~ claim 1 in display technology.

33. (currently amended) The use of the glass as claimed in ~~at least one of claims 1 to 11~~ claim 1 as substrate glass in photovoltaics.

5 34. (currently amended) The use of the glass as claimed in ~~at least one of claims 1 to 11~~ claim 1 as lamp glass.

35. (currently amended) The use of the glass as  
10 claimed in ~~at least one of claims 1 to 11~~ claim 1 as substrate glass for biochemical applications.

36. (currently amended) The use of the glass as  
15 claimed in ~~at least one of claims 1 to 11~~ claim 1 as target material in PVD processes.

37. (currently amended) The use of the glass as claimed in ~~at least one of claims 1 to 11~~ claim 1 as a glass fiber, in particular for reinforcing concrete.